(MSA <7 mm²) was achieved in the UG group (43%) compared to the DU group (59%, p < 0.05).

Conclusions: In this analysis of the final phase of the CRUISE trial (1) ultrasound guidance was associated with less severe under-expansion than angiographic guidance; (2) stent under-expansion was correlated with higher rates of TVR.

2:15

896-2 Angiography Versus Intravascular Ultrasound Assessment of Coronary Stent Placement: Observations From the AVID Study

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AVID (Angiography Versus Intravascular ultrasound-Directed stent placement) is a multicenter randomized study designed to assess the effect of intravascular ultrasound (IVUS) on patient outcome after elective coronary stent placement. To evaluate the relationship between angiographic and IVUS measurements after stent placement, data from 241 stents placed within 160 vessels was compared for patients enrolled in AVID. Images were obtained after a final angiographic result (< 10% residual stenosis) and before additional therapy.

Results: Mean stent minimal lumen diameter (MLD) for all vessels was 3.28 ± 0.51 mm by IVUS compared to 2.95 ± 0.61 mm by angiography (p < 0.001). Mean stent MLD for vein grafts was 3.59 ± 0.52 mm by IVUS and 2.79 ± 0.57 mm by angio (p < 0.001). Mean stent MLD for native vessels was 3.21 ± 0.49 mm by IVUS and 2.88 ± 0.57 mm by angio (p < 0.001). Mean proximal reference vessel diameter for all vessels was 3.97 ± 0.68 mm by IVUS and 3.43 ± 0.63 mm by angio. (p < 0.001). Mean distal reference vessel diameter for all vessels was 3.65 ± 0.73 mm by IVUS and 2.83 ± 0.70 by angio (p < 0.001). A significant difference (p < 0.001) in stent MLD, proximal and distal reference vessel diameter between IVUS and angiographic measurements was noted for all vessel sizes between 2.5 and 5.0 mm. A final stent minimal lumen area of ≥9.0 mm² (associated with a low rate of stent restenosis) was achieved with a mean distal reference vessel diameter of 4.27 mm by IVUS and 3.42 mm by angio (p < 0.001).

Conclusion: Coronary angiography consistently and significantly underestimates the results of coronary stent placement as well as proximal and distal reference vessel dimensions for all vessel sizes when compared to IVUS.

2:30

896-3 Intravascular Ultrasound Guided PTCA With Spot Stenting

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In this ongoing prospective study we are evaluating if a strategy of PTCA using a balloon/artery (B/A) ratio of 1 (IVUS maximal diameter media to media) and provisional spot stenting (SS) can achieve favorable acute luminal gains and long term outcome in complex lesions.

Methods: PTCA was performed under IVUS guidance to achieve a lumen cross sectional area (CSA) of ≥50% of the reference vessel or a lumen CSA of ≥5.5 mm². A stent was placed only in the segment of a lesion where this criteria was not achieved.

Results:

(Total 53 lesions)	PTCA only (n = 30)	PTCA + SS (n = 23)
Ref. diameter (mm)	2.72 ± .6	3.01 ± 0.6
Type B2 and C lesion	53%	100%
pre MLD (mm)	0.81 ± 0.4	0.73 ± 0.5
lesion length (mm)	10.7 ± 4	11.7 ± 6
post MLD (mm)	2.43 ± 0.5*	3.22 ± 0.6
Acute lum. gain (mm)	1.62 ± 0.6*	2.49 ± 0.6
B/A ratio	1.37 ± 0.3	1.31 ± 0.2
Max ball press (atm)	15.3 ± 4*	17.1 ± 3
# stents per lesion	0	1.17
Avg stent leng (mm)		19.2 ± 12
long stent (≥20 mm)		n = 6
MACE at 30 days (n)	1 (Myoc. Infarction)	1 (Myoc. Infarction)
Dissections ≥ type	n = 17	n = 11

* P < 0.05 MLD: min lumen diameter, MACE: maj. adv. card event.

Conclusions: An approach of aggressive IVUS guided PTCA with provisional spot stenting can lead to optimal acute luminal gain with a low rate of complications at 30 days. A number of dissections were evaluated and left untreated. Six month angiographic and clinical follow-up is pending.

2:45

896-4 Predictors of Intimal Hyperplasia Accumulation Within Palmaz-Schatz Stents: A Serial Quantitative Angiographic and Intravascular Ultrasound Study

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The purpose of this study was to determine the predictors of significant intimal hyperplasia (IH) within Palmaz-Schatz stents at follow-up. Serial (pre-intervention, post-intervention (final), and follow-up @ 5.4 ± 3.8 mos) intravascular ultrasound (IVUS) and quantitative angiographic (QCA) studies were performed in 177 lesions (60 vein graft, 117 native vessel) treated with 221 stents. Significant IH was defined as IH area/stent area ≥75%. This was measured at the smallest follow-up lumen area and was present in 59 lesions. Univariate predictors of significant IH at follow-up included

	IH/stent area < 75%	IH/stent area ≥75%	p
Ostial lesion location	14.6%	22.8%	0.0120
Number of stents	1.2 ± 0.4	1.5 ± 0.6	<0.0001
QCA reference lumen (mm)	3.03 ± 0.62	2.82 ± 0.51	0.0304
IVUS pre-intervention			
Lumen area (mm²)	2.45 ± 1.49	1.80 ± 0.89	0.0100
Plaque burden (%)	84 ± 8	89 ± 5	0.0010
IVUS final lumen area (mm²)	7.67 ± 2.67	7.19 ± 1.78	0.0010

Using multivariate logistic regression analysis, the only predictors of significant (≥75%) IH area at follow-up were the number of stents (odds ratio = 7.81, p = 0.0052), IVUS pre-intervention plaque burden (odds ratio = 7.30, p = 0.0069), and QCA reference lumen (odds ratio = 5.93, p = 0.0148).

We Conclude: Accumulation of IH within Palmaz-Schatz stents is strongly associated with antecedent patho-anatomy including smaller vessels, diffuse disease (increased number of stents required), and pre-intervention plaque burden.

3:00

896-5 Doppler Flow Velocity Reserve After Coronary Stent Implantation: Results of the DEBATE Stent Ancillary Trial

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Background: The DEBATE Study showed that distal coronary flow velocity ratio (CVRd) assessed by intracoronary Doppler guide wires (Cardiometrics, Mountain View, USA) increased significantly to a value of 2.5 after a successful balloon angioplasty (PTCA) procedure. Nevertheless, it remained unclear whether this is the optimum that can be maintained after PTCA with the presence of residual stenosis. Pupose of the DEBATE stent ancillary trial was to evaluate CVRd after adjunct stent implantation in order to minimize postinterventional residual stenosis.

Methods: In 48 patients (pts) with LAD or LCX stenoses CVRd was measured before intervention, after PTCA and after adjunct stent implantation. Additionally an intraindividual reference CVR (CVRref) was measured in the contralateral coronary artery which was not obstructed. CVR was calculated as the ratio of hyperemic and baseline flow velocity before and after intracoronary injection of 18 μg adenosine.

Results:

	Before PTCA	After PTCA	After stent	Reference vessel
CVRd	1.3 ± 0.5	2.4 ± 0.7*	3.1 ± 0.6§	3.2 ± 0.4
CVRd ≥CVRref	0/48	10/48	48/48	-
CVRd ≥2.5	0/48	19/48	45/48	-
MLD [mm]	1.0 ± 0.3	2.1 ± 0.6*	2.9 ± 0.4§	-

* p < 0.01 versus before PTCA; § p < 0.01 versus after PTCA

Residual stenosis was 28 ± 11% after PTCA and 9 ± 7% after stenting.

Conclusion: CVRd increased significantly after adjunct stent implantation in comparison to PTCA while residual stenosis was minimized after stent placement. In every case CVRd could be increased to the intraindividual reference level after stent implantation, while this could be achieved in only 21% of pts after PTCA.